

WHAT IS CLAIMED:

1. An isolated human nucleic acid molecule encoding a protein or polypeptide that modulates transcriptional activation in a cell with or without collaboration with a nuclear hormone receptor transcriptional co-activator.
2. An isolated nucleic acid molecule according to claim 1, wherein the nucleic acid molecule either 1) has a nucleotide sequence of SEQ ID NO: 1; 2) has a nucleotide sequence of SEQ ID NO: 4; 3) encodes an amino acid having SEQ ID NO: 3; 4) has a nucleotide sequence of SEQ ID NO: 5; 4) encodes an alternatively spliced amino acid sequence having SEQ ID NO: 6; 5) has a nucleotide sequence that is at least 85% similar to the nucleotide sequence of SEQ ID NOs: 1, 4 or 5 by basic BLAST using default parameters analysis; or 6) hybridizes to the nucleotide sequence of SEQ ID NOs: 1, 4 or 5 under stringency conditions characterized by a hybridization buffer comprising 5X SSC buffer at a temperature of 56°C.
3. A nucleic acid construct comprising:
the nucleic acid molecule according to claim 1;
an operably linked 5' regulatory region; and
an operably linked 3' regulatory region.
4. An expression vector comprising:
the nucleic acid construct according to claim 3.
5. A host cell transformed with the nucleic acid molecule according to claim 1.
6. The host cell according to claim 5, wherein the host cell is selected from the group consisting of a bacterial cell, a yeast cell, and a mammalian cell.

7. The host cell according to claim 6, wherein the host cell is a mammalian cell.
- 5 8. An antisense nucleic acid molecule which is derived from the nucleic acid molecule according to claim 1 or a fragment thereof.
9. The antisense nucleic acid molecule according to claim 8, wherein the antisense molecule is a single-stranded nucleic acid molecule.
- 10 10. The antisense nucleic acid molecule according to claim 8, wherein the antisense molecule is a double-stranded nucleic acid molecule.
11. An expression vector comprising:
15 the antisense nucleic acid molecule according to claim 8;
an operably linked 5' regulatory region; and
an operably linked 3' regulatory region.
12. A host cell transduced with the antisense nucleic acid
20 molecule according to claim 8.
13. The host cell according to claim 12, wherein the host cell is selected from the group consisting of a bacterial cell, a yeast cell, and a mammalian cell.
- 25 14. The host cell according to claim 13, wherein the host cell is a mammalian cell.
15. An isolated protein or polypeptide that modulates
30 transcriptional activation in a cell with or without collaboration with a nuclear hormone receptor transcriptional co-activator.

16. The isolated protein or polypeptide according to claim 15,
wherein the protein or polypeptide has an amino acid sequence of SEQ ID NO: 3.

17. The isolated protein or polypeptide according to claim 15,
5 wherein the protein or polypeptide has an amino acid sequence of SEQ ID NO: 6.

18. An isolated antibody or binding portion thereof raised
against a protein or polypeptide according to claim 15.

19. The isolated antibody or binding portion thereof according
10 to claim 18, wherein said antibody is monoclonal or polyclonal.

20. The antibody or binding portion thereof according to claim
18, wherein the binding portion thereof is selected from the group consisting of an
15 Fab fragment, an F(ab')₂ fragment, and an Fv fragment.

21. The isolated antibody or binding portion thereof according
to claim 18, wherein the protein or polypeptide has an amino acid sequence of
SEQ ID NO: 3.

22. The isolated antibody or binding portion thereof according
20 to claim 18, wherein the protein or polypeptide has an amino acid sequence of
SEQ ID NO: 6.

23. A method of regulating cell proliferation comprising:
25 transfecting a cell with the nucleic acid according to claim 1 under
conditions effective to regulate cell proliferation.

24. The method according to claim 23, wherein the cell is a
30 mammalian cell.

25. The method according to claim 24, wherein the mammalian
cell is human.

26. A method of regulating differentiation of a cell comprising:
transfecting a cell with the nucleic acid molecule according to
claim 1 under conditions effective to regulate differentiation of the cell.

5

27. The method according to claim 26, wherein the cell is a
mammalian cell.

28. The method according to claim 27, wherein the mammalian
10 cell is human.

29. A method of regulating development of a cell comprising:
transfecting a cell with the nucleic acid molecule according to
claim 1 under conditions effective to regulate development of the cell.

15

30. The method according to claim 29, wherein the cell is a
mammalian cell.

31. The method according to claim 30, wherein the mammalian
20 cell is human.

32. A method of modulating activity of a transcriptional co-
activator complex in a cell, said method comprising:
transfecting a cell with the nucleic acid molecule according to
25 claim 1, or a fragment thereof, under conditions effective to modulate activity of a
transcriptional co-activator complex in the cell.

33. The method according to claim 32, wherein the cell is a
mammalian cell.

30

34. The method according to claim 33, wherein the mammalian
cell is human.

35. A method of modulating activity of a transcriptional co-activator complex in a cell, said method comprising:

transfecting a cell with the nucleic acid molecule according to claim 8 under conditions effective to modulate activity of a transcriptional co-activator complex in the cell.

36. The method according to claim 35, wherein the cell is a mammalian cell.

37. The method according to claim 36, wherein the mammalian cell is human.

38. A method of modulating activity of a transcriptional co-activator complex in a cell, said method comprising:

contacting a cell with the isolated protein or polypeptide according to claim 15 under conditions effective to modulate activity of a transcriptional co-activator complex in the cell.

39. The method according to claim 38, wherein the cell is a mammalian cell.

40. The method according to claim 39, wherein the mammalian cell is human.

41. A method of modulating activity of a transcriptional co-activator complex in a cell, said method comprising:

contacting a cell with the antibody or binding portion thereof according to claim 18 under conditions effective to modulate activity of a transcriptional co-activator complex in the cell.

42. The method according to claim 41, wherein the cell is a mammalian cell.

43. The method according to claim 42, wherein the mammalian cell is human.

44. A method of regulating hormone receptor activity in a cell
5 comprising:
contacting a cell with an isolated protein or polypeptide according to claim 15 under conditions effective to regulate hormone receptor activity in the cell.

10 45. The method according to claim 44, wherein the hormone receptor is selected from the group consisting of an estrogen receptor, a progesterone receptor, a vitamin D receptor, a thyroid hormone receptor, a retinoic acid receptor, a retinoid X receptor, a glucocorticoid receptor, a peroxisome-proliferation activated receptor, a liver X receptor, a bile acid receptor and an
15 orphan receptor.

46. The method according to claim 44, wherein the cell is a mammalian cell.

20 47. The method according to claim 46, wherein the mammalian cell is human.

48. A method of regulating hormone receptor activity in a cell
comprising:
25 contacting a cell with the antibody or binding portion thereof according to claim 18 under conditions effective to regulate hormone receptor activity in the cell.

49. The method according to claim 48, wherein the hormone
30 receptor is selected from the group consisting of an estrogen receptor, a progesterone receptor, a vitamin D receptor, a thyroid hormone receptor, a retinoic acid receptor, a retinoid X receptor, a glucocorticoid receptor, a peroxisome-

proliferation activated receptor, a liver X receptor, a bile acid receptor and an orphan receptor.

50. The method according to claim 48, wherein the cell is a
5 mammalian cell.

51. The method according to claim 50, wherein the mammalian cell is human.

10 52. A method of regulating hormone receptor activity in a cell comprising:

transfecting a cell with a nucleic acid molecule according to claim 1 under conditions effective to regulate hormone receptor activity in the cell.

15 53. The method according to claim 52, wherein the hormone receptor is selected from the group consisting of an estrogen receptor, a progesterone receptor, a vitamin D receptor, a thyroid hormone receptor, a retinoic acid receptor, a retinoid X receptor, a glucocorticoid receptor, a peroxisome-proliferation activated receptor, a liver X receptor, a bile acid receptor and an
20 orphan receptor.

54. The method according to claim 52, wherein the cell is a mammalian cell.

25 55. The method according to claim 54, wherein the mammalian cell is human.

56. A method of regulating hormone receptor activity in a cell comprising:

30 transfecting a cell with a nucleic acid molecule according to claim 8 under conditions effective to regulate hormone receptor activity in the cell.

57. The method according to claim 56, wherein the hormone receptor is selected from the group consisting of an estrogen receptor, a progesterone receptor, a vitamin D receptor, a thyroid hormone receptor, a retinoic acid receptor, a retinoid X receptor, a glucocorticoid receptor, a peroxisome-proliferation activated receptor, a liver X receptor, a bile acid receptor and an orphan receptor.

58. The method according to claim 56, wherein the cell is a mammalian cell.

10

59. The method according to claim 58, wherein the mammalian cell is human.

60. A method of modulating activity of a transcription factor in a cell comprising:

15

transfecting a cell with a nucleic acid molecule according to claim 1 under conditions effective to modulate activity of transcription factor in the cell.

61. The method according to claim 60, wherein the transcription factor is selected from the group consisting of cFos, cJun, AP1, NF- κ B, p53, and STATs.

20

62. The method according to claim 60, wherein the cell is a mammalian cell.

25

63. The method according to claim 62, wherein the mammalian cell is human.

64. A method of modulating activity of a transcription factor in a cell comprising:

30

transfecting a cell with a nucleic acid molecule according to claim 8 under conditions effective to modulate activity of transcription factor in the cell.

65. A method according to claim 64, wherein the transcription factor is selected from the group consisting of cFos, cJun, AP1, NF- κ B, p53, and STATs.

5 66. The method according to claim 64, wherein the cell is a mammalian cell.

67. The method according to claim 66, wherein the mammalian cell is human.

10

68. A method of modulating endocrine function in a subject, said method comprising:
treating a subject with a nucleic acid molecule according to claim 1 under conditions effective to modulate endocrine function in the subject.

15

69. The method according to claim 68, wherein the subject is a mammal.

70. The method according to claim 69, wherein the mammal is human.

20

71. A method of modulating endocrine function in a subject, said method comprising:
treating a subject with a nucleic acid molecule according to claim 8 under conditions effective to modulate endocrine function in the subject.

25

72. The method according to claim 71, wherein the subject is a mammal.

73. The method according to claim 72, wherein the mammal is human.

30

74. A method of modulating endocrine function in a subject,
said method comprising:

treating a subject with a protein or polypeptide according to claim
15 under conditions effective to modulate endocrine function in the subject.

5

75. The method according to claim 74, wherein the subject is a
mammal.

76. The method according to claim 75, wherein the mammal is
10 human.

77. A method of modulating endocrine function in a subject,
said method comprising:

treating a subject with the antibody or binding portion thereof
15 according to claim 18 under conditions effective to modulate endocrine function
in the subject.

78. The method according to claim 77, wherein the subject is a
mammal.

20

79. The method according to claim 78, wherein the mammal is
human..

80. A method of treating diabetes comprising:
25 treating a subject having diabetes with a protein or polypeptide
according to claim 15 under conditions effective to treat diabetes.

81. The method according to claim 80, wherein the subject is a
mammal.

30

82. The method according to claim 81, wherein the mammal is
human.

83. A method of treating diabetes comprising:
treating a subject having diabetes with an antibody or binding
portion thereof according to claim 18 under conditions effective to treat diabetes.

5 84. The method according to claim 83, wherein the subject is a
mammal.

85. The method according to claim 84, wherein the mammal is
human.

10 86. A method of treating insulin resistance in a subject, said
method comprising:

treating a subject having insulin resistance with a protein or
polypeptide according to claim 15 under conditions effective to treat insulin
15 resistance.

87. The method according to claim 86, wherein the subject is a
mammal.

20 88. The method according to claim 87, wherein the mammal is
human.

89. An isolated rat nucleic acid molecule encoding a protein or
polypeptide that modulates transcriptional activation in a cell with or without
25 collaboration with a nuclear hormone receptor transcriptional co-activator.

90. The isolated nucleic acid molecule according to claim 89,
wherein the nucleic acid molecule either 1) has a nucleotide sequence of SEQ ID
NO: 7; 2) encodes an amino acid having SEQ ID NO: 8; 3) has a nucleotide
30 sequence that is at least 85% similar to the nucleotide sequence of SEQ ID NO: 7
by basic BLAST using default parameters analysis; or 4) hybridizes to the
nucleotide sequence of SEQ ID NO: 7 under stringency conditions characterized
by a hybridization buffer comprising 5X SSC buffer at a temperature of 56°C.

- 5 91. A nucleic acid construct comprising:
the nucleic acid molecule according to claim 89;
an operably linked 5' regulatory region; and
an operably linked 3' regulatory region.